WHAT IS CLAIMED IS:

1. A method for generating an estimate of inhomogeneity, said method comprising:

generating a first estimate of inhomogeneity;

generating a second estimate of inhomogeneity; and

generating a final estimate of inhomogeneity using at least the first and second estimates.

2. A method in accordance with Claim 1 wherein said generating a first estimate comprises generating a first estimate by filtering an image g_m, said generating a second estimate comprises generating a second estimate of inhomogeneity using an operation other than filtering on an image g_m.

3. A method in accordance with Claim 2 wherein said generating a second estimate comprises generating a second estimate of inhomogeneity by dividing g_m by a threshold value of g_m (threshold g_m).

4. A method in accordance with Claim 3 wherein said generating a second estimate comprises generating a second estimate of inhomogeneity by dividing g_m by threshold g_m where threshold g_m is calculated in accordance with:

if (SD/BI) < A, then the threshold g_m = FI * (BI/FI +B);

else if (SD/BI) < B, then the threshold g_m = FI * (BI/FI +D);

else if (SD/BI) ≤ C, then the threshold g_m = BI;

else if ((SD/BI) > C) AND (BI/FI) < E, then the threshold g_m = FI * G;

else {

the threshold g_m = FI*(BI/FI – H);

if the threshold $g_m < 0.0$, then the threshold $g_m = FI * I$;

}

where FI is foreground intensity computed as an average of structure regions, BI is background intensity computed as an average of non-structure regions having intensity less than FI, SD is a standard deviation of non-structure regions, and A, B, C, D, E, G, H, I are scalars with $A < B < C$.

5. A method in accordance with Claim 4 wherein A is about 0.2, B is about 0.5, C is about 1.0, D is about 0.2, E is about 0.2, G is about 0.2, and H is about 0.1.

6. A method in accordance with Claim 2 wherein said generating a first estimate by filtering an image g_m comprises generating a first estimate by filtering an image g_m with a low pass filter.

7. A method in accordance with Claim 1 wherein said generating a first estimate comprises generating a first estimate by filtering an image g_m with a first filter, said generating a second estimate comprises generating a second estimate of inhomogeneity by filtering an image g_m with a second filter different than the first filter.

8. A method in accordance with Claim 1 wherein said generating a first estimate comprises generating a first estimate by filtering an image g_m with a first low pass filter, said generating a second estimate comprises generating a second estimate of inhomogeneity by filtering an image g_m with a second low pass filter different than the first filter.

9. A method in accordance with Claim 1 wherein said generating a first estimate comprises generating a first estimate by filtering an image g_m with a low pass filter, said generating a second estimate comprises generating a second estimate of inhomogeneity by filtering an image g_m with a band pass filter.

10. A method in accordance with Claim 1 wherein said generating a final estimate of inhomogeneity using the first and second estimates comprises generating a final estimate of inhomogeneity using the first and second estimates in accordance with $h = h_1 + (h_2 - h_1) * \theta$; wherein h is the final estimate, h_1 is the first estimate, h_2 is the second estimate, and θ is a scalar such that $0 < \theta < 1$.

11. A method in accordance with Claim 10 wherein generating a second estimate comprises generating a second estimate of inhomogeneity by dividing an image g_m by a threshold value of g_m (threshold g_m) where threshold g_m is calculated in accordance with:

if (SD/BI) < 0.2, then the threshold g_m = FI * (BI/FI +0.2);

else if (SD/BI) < 0.5, then the threshold g_m = FI * (BI/FI +0.1);

else if (SD/BI) ≤ 1.0, then the threshold g_m = BI;

else if ((SD/BI) > 1.0) AND (BI/FI) < 0.2, then the threshold g_m = FI * 0.2;

else {

threshold g_m = FI*(BI/FI – 0.1);

if the threshold g_m < 0.0, then the threshold g_m = FI * 0.1;

}

where FI is foreground intensity computed as an average of structure regions, BI is background intensity computed as an average of non-structure regions having intensity less than FI, and SD is a standard deviation of non-structure regions.

12. A method in accordance with Claim 9 wherein said generating a final estimate comprises generating a final estimate using $h(x,y) = \theta_1 h_1 + \theta_2 h_2 + \ldots +$

$\theta_N h_N$, wherein $0<\theta_1, \theta_2, \ldots, \theta_N <1$, $\theta_1 + \theta_2 + \ldots + \theta_N = 1$, h_1 is the first estimate, h_2 is the second estimate, , h_N is the Nth estimate, h is the final estimate, and $N \geq 2$.

13. A magnetic resonance imaging (MRI) system comprising:

a main magnet configured to generate a substantially uniform magnetic field;

a radio frequency pulse generator configured to excite the magnetic field;

a gradient field generator configured to generate gradients extending in different directions in the magnetic field;

a receiver configured to receive magnetic field magnetic resonance (MR) signals representative of an object; and

a computer operationally coupled to said receiver, said computer configured to:

generate a first estimate of inhomogeneity;

generate a second estimate of inhomogeneity; and

generate a final estimate of inhomogeneity using at least the first and second estimates.

14. A MRI system in accordance with Claim 13 wherein said computer further configured to:

generate the first estimate by filtering an image g_m; and

generate the second estimate of inhomogeneity using an operation other than filtering.

15. A MRI system in accordance with Claim 14 wherein said computer further configured to generate the second estimate of inhomogeneity by dividing an image g_m by a threshold value of g_m (threshold g_m).

16. A MRI system in accordance with Claim 15 wherein said computer further configured to calculate threshold g_m in accordance with:

if (SD/BI) < 0.2, then the threshold g_m = FI * (BI/FI +0.2);

else if (SD/BI) < 0.5, then the threshold g_m = FI * (BI/FI +0.1);

else if (SD/BI) ≤ 1.0, then the threshold g_m = BI;

else if ((SD/BI) > 1.0) AND (BI/FI) < 0.2, then the threshold g_m = FI * 0.2;

else {

the threshold g_m = FI*(BI/FI – 0.1);

if the threshold g_m < 0.0, then the threshold g_m = FI * 0.1;

}

where FI is foreground intensity computed as an average of structure regions, BI is background intensity computed as an average of non-structure regions having intensity less than FI, and SD is a standard deviation of non-structure regions.

17. A MRI system in accordance with Claim 14 wherein said computer further configured to generate the first estimate by filtering an image g_m with a low pass filter.

18. A MRI system in accordance with Claim 13 wherein said computer further configured to:

generate the first estimate by filtering an image g_m with a first filter; and

generate the second estimate by filtering an image g_m with a second filter different than the first filter.

19. A MRI system in accordance with Claim 13 wherein said computer further configured to:

generate the first estimate by filtering an image g_m with a first low pass filter; and

generate the second estimate by filtering an image g_m with a second low pass filter different than the first low pass filter.

20. A MRI system in accordance with Claim 13 wherein said computer further configured to:

generate the first estimate by filtering an image g_m with a low pass filter; and

generating the second estimate by filtering an image g_m with a band pass filter.

21. A MRI system in accordance with Claim 13 wherein said computer further configured to generate the final estimate of inhomogeneity using the first and second estimates in accordance with $h = h_1 + (h_2 - h_1) * \theta$; wherein h is the final estimate, h_1 is the first estimate, h_2 is the second estimate, and θ is a scalar such that $0 < \theta < 1$.

22. A MRI system in accordance with Claim 21 wherein said computer further configured to:

generate the first estimate by filtering an image g_m; and

generating the second estimate of inhomogeneity using an operation other than filtering.

23. A MRI system in accordance with Claim 22 wherein said computer further configured to: generate the second estimate of inhomogeneity by dividing an image g_m by a threshold value of g_m (threshold g_m) where threshold g_m is calculated in accordance with:

if (SD/BI) < 0.2, then the threshold g_m = FI * (BI/FI +0.2);

else if (SD/BI) < 0.5, then the threshold g_m = FI * (BI/FI +0.1);

else if (SD/BI) ≤ 1.0, then the threshold g_m = BI;

else if ((SD/BI) > 1.0) AND (BI/FI) < 0.2, then the threshold g_m = FI * 0.2;

else {

the threshold g_m = FI*(BI/FI – 0.1);

if the threshold g_m < 0.0, then the threshold g_m = FI * 0.1;

}

where FI is foreground intensity computed as an average of structure regions, BI is background intensity computed as an average of non-structure regions having intensity less than FI, and SD is a standard deviation of non-structure regions.

24. A MRI system in accordance with Claim 21 wherein said computer further configured to:

generate the first estimate by filtering an image g_m with a first filter; and

generate the second estimate by filtering an image g_m with a second filter different than the first filter.

25. A computer readable medium encoded with a program configured to instruct a computer to:

generate a first estimate of inhomogeneity;

generate a second estimate of inhomogeneity; and

generate a final estimate of inhomogeneity using at least the first and second estimates.

26. A medium in accordance with Claim 25 wherein said program further configured to instruct the computer to:

generate the first estimate by filtering an image g_m; and

generate the second estimate of inhomogeneity using an operation other than filtering.

27. A medium in accordance with Claim 25 wherein said program further configured to instruct the computer to generate the second estimate of inhomogeneity by dividing an image g_m by a threshold value of g_m (threshold g_m) where threshold g_m is calculated in accordance with:

if (SD/BI) < 0.2, then the threshold g_m = FI * (BI/FI +0.2);

else if (SD/BI) < 0.5, then the threshold g_m = FI * (BI/FI +0.1);

else if (SD/BI) ≤ 1.0, then the threshold g_m = BI;

else if ((SD/BI) > 1.0) AND (BI/FI) < 0.2, then the threshold g_m = FI * 0.2;

else {

the threshold g_m = FI*(BI/FI – 0.1);

if the threshold g_m < 0.0, then the threshold g_m = FI * 0.1;

}

where FI is foreground intensity computed as an average of structure regions, BI is background intensity computed as an average of non-structure regions having intensity less than FI, and SD is a standard deviation of non-structure regions.

28. A medium in accordance with Claim 25 wherein said program further configured to instruct the computer to:

generate the first estimate by filtering an image g_m with a first filter; and

generate the second estimate by filtering an image g_m with a second filter different than the first filter.

29. A medium in accordance with Claim 28 wherein the image g_m filtered with the first filter is the same image g_m filtered with the second filter.

30. A medium in accordance with Claim 28 wherein the image g_m filtered with the first filter is an image different then the image g_m filtered with the second filter.

31. A medium in accordance with Claim 25 wherein said program further configured to instruct the computer to generate the final estimate of inhomogeneity using the first and second estimates in accordance with $h = h_1 + (h_2 - h_1) * \theta$; wherein h is the final estimate, h_1 is the first estimate, h_2 is the second estimate, and θ is a scalar such that $0 < \theta < 1$.

32. A medium in accordance with Claim 31 wherein said program further configured to instruct the computer to generate the second estimate of inhomogeneity by dividing an image g_m by a threshold value of g_m (threshold g_m) where threshold g_m is calculated in accordance with:

if (SD/BI) < 0.2, then the threshold g_m = FI * (BI/FI +0.2);

else if (SD/BI) < 0.5, then the threshold g_m = FI * (BI/FI +0.1);

else if (SD/BI) $\leq$ 1.0, then the threshold g_m = BI;

else if ((SD/BI) > 1.0) AND (BI/FI) < 0.2, then the threshold g_m = FI * 0.2;

else {

the threshold g_m = FI*(BI/FI – 0.1);

if the threshold g_m < 0.0, then the threshold g_m = FI * 0.1;

}

where FI is foreground intensity computed as an average of structure regions, BI is background intensity computed as an average of non-structure regions having intensity less than FI, and SD is a standard deviation of non-structure regions.